



aperam  
made for life

Welding Alloys  
Wire Rods

TRADE NAMES of PHYWELD®	CHEMICAL ANALYSIS											STANDARDS			WELDING TYPE				Main Applications
	C	Si	Mn	Ni	Cr	Mo	Cu	Co	Cb	S	P	Others	AWS	DIN 1736 Part 1	B.S. 2901 Part 5	CORE	GTAW	SAW	
	0.1	0.25	0.35	> 99,2		0.25				0.015	0.02	Fe < 0.40	SFA 5.15 ENi-CI UNS W82001	2.4066	NA 46	■			
PHYWELD 200	0.1	0.25	0.35	> 99,2		0.25				0.015	0.02	Fe < 0.40	SFA 5.15 ENi-CI UNS W82001	2.4066	NA 46	■			Welding of ductile, malleable and gray cast irons - <b>Dissimilar welding</b> of cast irons to low-alloy and carbon steels <i>Weld metal: easily machinable</i>
PHYWELD 301				> 93								Al 4.0 / 5.0							Thermal Spray application
PHYWELD 61	0.05	0.8	0.8	> 94		0.2	0.2			0.015	0.015	Ti 2.52/3.5	SFA 5.14 ER Ni-1	2.4155	NA 32	■	■	■	Welding of Nickel 200 and 201 - <b>Surfacing</b> of steel - <b>Dissimilar welding</b> (joining Nickel 200 & 201 to stainless steels, carbon steels, corrosion & oxidation resistant alloys, copper-nickel & nickel-copper alloys - joining of copper-nickel & nickel-copper alloys to carbon steels and corrosion resistant alloys) <i>Weld metal: good corrosion resistance, particularly in alkalis</i>
PHYWELD 55	0.05	0.3	0.5	54 56		0.5	0.5			0.015	0.02	Fe Bal.	SFA 5.15 E Ni-Fe-CI UNS W82002	2.4420	NA 47	■	■	■	Welding of gray, ductile, malleable cast irons <b>Dissimilar welding</b> of cast irons to carbon steels, low-alloy steels and nickel alloys
PHYWELD 690	0.04	0.5	1	Bal.	28 31.5	0.3		0.1		0.015	0.02	Fe 70/11.0 Al < 1.10 Ti < 1.0	SFA 5.14 ER NiCrFe-7 N06052			■	■	■	Welding for joining or <b>Surfacing</b> of all kinds of stainless steels due to its very high corrosion resistance and high strength in many corrosive medias including at high temperature. Thus used in boilers, chemical and nuclear industries.
PHYWELD 82	0.05	0.5	2.5 3.5	> 67		0.5	0.2	2.0 3.0		0.015	0.015	Fe < 3.0	SFA 5.14 ER NiCr-3	2.4806	NA 35	▲	■	■	Welding of NY 600, 601, 690 & 800 - <b>Surfacing</b> of steels - <b>Dissimilar welding</b> (joining of corrosion resistant alloys to Nickel, nickel-copper alloys, stainless steels and carbon steels - joining of stainless steels to nickel alloys and carbon steels) <i>Weld metal: high strength, creep-rupture strength at elevated temperatures and good corrosion resistance</i>
PHYWELD 625	0.03	0.5	0.5	> 58	21 23	8.5 9.5	0.2	3.2 4.0		0.015	0.015	Fe < 1.0	SFA 5.14 ER NiCrMo-3	2.4831	NA 43	■	■	■	Welding of SY 625, 825, 926, various corrosion-resistant alloys, Molybdenum-containing stainless steels, Nickel Steels <b>Surfacing</b> of steels - <b>Dissimilar welding</b> of corrosion-resistant alloys, carbon steels, low-alloy steels and stainless steels <i>Weld metal: high strength over a large temperature range and resistance to pitting and crevice corrosion</i>
PHYWELD NCW*	0.03	0.5	0.5	Bal.	21 23	9.5 10.5	0.2			0.015	0.015	Al < 0.4 Ti < 0.4 W 2.5/3.5				■	■	■	Welding application similar with Phyweld 625 with W in place of Cb for better resistance to hot-cracking.
PHYWELD 22	0.015	0.08	0.5	Bal.	21.0 22.5	12.5 14.5	0.3	2.5		0.01	0.015	Al < 0.4 V < 0.35 W 2.5/3.5 Fe 2.0/5.0	SFA 5.14 ER NiCrMo-10	2.4635 2.4602		■	■	■	Welding of SY 22, 625, 926 & 825 - <b>Dissimilar welding</b> of corrosion resistant alloys, carbon steels, low-alloy steels and stainless steels <i>Weld metal: good resistance to pitting and crevice corrosion</i>
PHYWELD 276	0.02	0.08	0.3 1.0	Bal.	15 16.5	15 17	0.3	1		0.015	0.015	Fe 4.0/7.0 V < 0.35 W 3.2/4.2	SFA 5.14 ER NiCrMo-4	2.4886 2.4819	NA 48	■	■	■	Welding of SY 276 and Nickel-Chromium-Molybdenum alloys <b>Surfacing</b> of Steels - <b>Dissimilar welding</b> of SY 276 to other Nickel alloys, to stainless steels and to low-alloy steels <i>Weld metal: excellent corrosion resistance, especially resistance to pitting and crevice corrosion</i>

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	C	Si	Mn	Ni	Cr	Mo	Cu	Co	Cb	S	P	Others	AWS	DIN 1736 Part 1	B.S. 2901 Part 5	CORE	GTAW		SAW	
PHYWELD 686	0.01	0.08	1	Bal.	19 23	15 17	0.5			0.015	0.02	Fe < 5 W 30/44 Al < 0.5 Ti < 0.25	SFA 5.14 ERNiCrMo-14 N06686				■	■	■	Welding of high corrosion resistance alloys such as alloys 625, 276, 22 or 59 or overlaying of steels in the most aggressive medias : waste incineration, paper, oil and gaz industry, off shore... high mechanical and oxydation resistance
PHYWELD X	0.05 0.10	1	0.5	Bal.	20.5 22	8.0 9.0	0.5 2.5			0.015	0.02	W 0.2 / 1.0 Fe 17 / 20	SFA 5.14 ERNiCrMo-2	2.4665	NA 40		■	■	■	Welding of PHY X, and Nickel-Chromium-Molybdenum alloys - Surfacing of steels Dissimilar welding of PHY X to other Nickel alloys, stainless steels, carbon steels and low-alloy steels Weld metal: outstanding strength and oxidation resistance at temperatures up to 1200°C (2200°F)
PHYWELD 617	0.05 0.10	0.5	0.5	Bal.	21 24	8.5 9.5	11 13			0.015	0.015	Al 1/1.5 Ti < 0.6 Fe < 1	SFA 5.14 ERNiCrCoMo-1	2.4627	NA 50		■	■	■	Welding of PHY 617 - Dissimilar welding of high-temperature alloys Weld metal: high temperature strength, oxidation resistance and metallurgical stability
PHYWELD 718	0.08	0.35	0.35	50 55	17 21	2.8 3.3		4.75 5.50		0.015	0.015	Al 0.2 / 0.8 Ti 0.65 / 1.15 Fe Bal.	SFA 5.14 ERNiFeCr-2	2.4667	NA 51		■	■	■	Welding of SY 718, 750 and 706 Weld metal: age hardenable
PHYWELD 920 SLR	0.025	0.15	1.5 2.0	32 34	19 21	2.0 3.0	3.0 4.0	8xC 0.4		0.02	0.015		SFA 5.9 ER 320LR	2.4660			■	■	■	Welding: austenitic stainless steel by all practices such as gas tungsten arc and gas metal arc Weld metal: compared with ER320, the lower C, Si, P, and S levels & controlled Nb and Mn reduce the cracking tendency of austenitic stainless steel weld metals, maintaining the corrosion resistance
PHYWELD 25-9-4	0.03	1	1	9.0 10	24 27	3.5 4.5	1.5		0.01	0.025	N 0.20 / 0.30 W < 1.5 Fe Bal.	NL 12072:25 94L				■	■	■	Welding: all duplex and superduplex steels when the highest possible corrosion resistance is required Weld metal: excellent resistance to intergranular corrosion, pitting and stress corrosion cracking	
PHYWELD 413	0.05	0.15	1	30 32			Bal		0.01	0.01	Al < 0.03 Ti 0.2 / 0.5 Fe 0.4 / 0.7	SFA 5.7 ER CuNi	2.0837	C 18		■	■	■	Welding of Copper-Nickel alloys - Surfacing of steels - Dissimilar welding of Nickel-Copper alloys or Nickel 200 to Copper-Nickel alloys Weld metal: excellent resistance to corrosion in sea water	
PHYWELD 418	0.15	1	30 40	63 68			Bal		0.01	0.015	Al < 0.5 Ti < 1.5 / 3.0	SFA 5.14 ERNiCu7	2.4377	NA 33		■	■	■	Welding of PHY 400 - Surfacing of steels Weld metal: properties similar to those of PHY 400, good strength corrosion resistance to sea water, salts and reducing acids	

 Possible  
 Recommended

## Other available specialties in wire rods:

Corrosion and oxidation resistant grades / Controlled expansion grades  
Magnetic grades / Resistance grades / Cold heading grades

**Available surface finishing:** Pickled shaved or peeled - **Standard coil weight:** 500 kg (1100 Lbs)

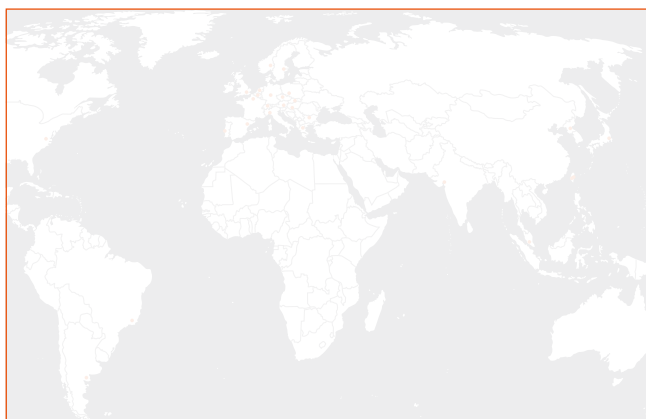
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### Contact us:

[www.aperam.com/alloys-imphy](http://www.aperam.com/alloys-imphy)

[nickel.alloys@aperam.com](mailto:nickel.alloys@aperam.com)

T: + 33 (0)3 86 21 34 37

F: +33 (0)3 86 21 31 14

**Aperam Alloys Imphy**

BP1  
58160 Imphy  
FRANCE